

## **REMARKS / ARGUMENTS**

Claims 1-14, 19-33, 46 and 47 remain in this application. Claims 15-18, and 34-45 have been previously withdrawn from consideration. Claims 1, 3, 10, and 31 have been amended. Claim 2 has been cancelled. New Claims 49-51 have been added to more clearly define the present invention. The new claims add no new matter, as support for the claims is in the specification. See generally, page 20, paragraph 62 through page 22, paragraph 70.

Claim 1 has been amended to more distinctly claim this invention. The elements of the Markush group in claim 2 have been incorporated into claim 1, and claim 2 has subsequently been cancelled. The element 'water' has been removed from this Markush group. Elements, which define the ultimate purity of the purified chemical, have also been added to claim 1. Support for these amendments may be found on page 8, in the third paragraph of the Specification, wherein it states that "the cartridge 100 can typically provide a purified hydrogen peroxide solution having a cationic concentration of less than or equal to about 1 ppb per cationic contaminant, and anionic concentration of less than or equal to about 10 ppb per anionic contaminant".

Claims 10 and 31 have been amended to remove the reference to the trade name Teflon®.

### **Claim Rejections Under 35 U.S.C. § 103**

Claims 1-14, 19, 23-33, 46 and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haslett '004. Applicants respectfully submit that claims 1-14, 19, 23-33, 46 and 47 are not unpatentable over Haslett '004.

Applicants' amendments to claim 1 have rendered these rejections moot. These amendments further define the particular chemicals to be purified by this

invention. These amendments also further define the degree to which these particular chemicals are to be purified.

In contrast to the present invention, Haslett '004 discloses a basic water softening device. While Haslett '004 discloses an invention that 'relates to devices for treating liquids', it is only enabled with regard to the treatment of water. Haslett '004 neither teaches nor suggests a device for safely purifying liquids such as hydrogen peroxide, hydrofluoric acid or hydrochloric acid. Haslett '004 neither teaches nor suggests *any* level of effluent liquid purity, and in particular neither teaches nor suggest the ultra-high purity levels required by the current amendments.

The Examiner notes that Haslett '004 "discloses the claimed invention with the exception of the length, diameter, and length to diameter ratio of the cartridge, and the material from which this cartridge is constructed." The Examiner further notes that these characteristics "are not seen to materially affect the operation of this reference system, or to produce any new and unexpected results; and are therefore deemed to be obvious matters of choice".

Applicants respectfully urge the Examiner to reconsider these assessments of patentable distinction. As Judge Learned Hand noted in *Tratel Marbel Co. v Hungerford Brass & Co.*, 18 F.2d 66 (2d Cir. 1927), "Very slight structural changes may be enough to support a patent ... We are to judge such devices, not by the mere innovation in their former material, but by the purpose which dictated them and discovered their function." In the instant invention, the structure and function are completely interrelated, and must be considered together when evaluating the invention "as a whole" as referred to in 35 U.S.C. § 103.

It is well recognized by those of skill in the art, that fluid velocity and the resultant resin contact time must be carefully considered when designing a resin

purification system. Depending upon the fluid being purified, and the particular resin that is being used, contact time that is too short can result in inadequate purification, whereas contact time that is too long can result in catalyzation or recontamination of the fluid. It is also well recognized that the material from which such a purification system is constructed must also be carefully considered when designing a resin purification system. Improper materials can result in contamination of the fluid, or, as is the case with hydrogen peroxide, tolerance for potentially significant variability in internal pressures must be considered when selecting the specific materials of construction.

One of ordinary skill in the art would certainly recognize that physical design aspects that effect flow characteristics and contact time, as well as the basic materials of construction, must be carefully considered when designing a chemical purification system, as in the present invention, and are not simply "obvious matters of choice".

Haslet '004 discloses the use of Zeolite to soften water. The Zeolite exchanges one metal ion for a different metal ion. This is in very sharp contrast to the present invention, which uses a different type of material to exchange hydrogen ions for metal ions. In the present invention, any metal ions in the purified stream would be considered contamination, and would hence be unacceptable.

One of ordinary skill in the art would find that Haslet '004 neither teaches nor suggests the present invention.

Claims 1-14, 19, 20, 23-33, 46 and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Crofts et al '665. Applicants respectfully submit that claims 1-14, 19, 20, 23-33, 46 and 47 are not unpatentable over Crofts et al. '665.

Applicants' amendments to claim 1 have rendered these rejections moot.

The Examiner notes that Crofts et al '665 "discloses the claimed invention with the exception of the length, diameter, and length to diameter ratio of the cartridge, and the material from which this cartridge is constructed." The Examiner further notes that these characteristics "are not seen to materially affect the operation of this reference system, or to produce any new and unexpected results; and are therefore deemed to be obvious matters of choice".

As discussed above, Applicants respectfully urge the Examiner to reconsider these assessments of patentable distinction.

In contrast with the present invention, Crofts et al '665 discloses a **membrane** that has been impregnated with Ion exchange resins. Furthermore, this application only addresses large scale purification and can only be used for final purification or point of use polishing.

One of ordinary skill in the art would find that Crofts et al '665 neither teaches nor suggests the present invention.

Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Crofts et al '665 in view of Casolo '648. Applicants respectfully submit that claims 21 and 22 are not unpatentable over Crofts et al. '665 in view of Casolo '648.

Applicants' amendments to claim 1 have rendered these rejections moot, and Casolo '648 does not cure these deficiencies.

Casolo '648 teaches "the pH adjustment of the liquid at predetermined points in the flow path" (Abstract) which would simply be **adding an impurity** in the present invention.

Appl. No. 09/824,771  
Amdt. dated September 10, 2003  
Reply to Office Action of April 10, 2003

One of ordinary skill in the art would find that Crofts et al '664 in view of Casolo '648 neither teaches nor suggests the present invention.

## CONCLUSION

In view of the current amendments, the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited.

Should the Examiner believe that a telephone call would expedite prosecution of the application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,



Linda K. Russell  
Registration No. 34,918

Date: September 10, 2003  
Air Liquide  
2700 Post Oak Blvd., Suite 1800  
Houston, Texas 77056  
Phone: (713) 624-8956  
Fax: (713) 624-8950

### CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 10<sup>th</sup> day of September 2003.

---

Stacy Forte